

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number
WO 2005/086287 A1

(51) International Patent Classification⁷: **H01Q 5/00**,
1/24, 9/42, 1/38, 21/30

(72) Inventor; and

(75) Inventor/Applicant (for US only): **PELZER, Heiko**
[DE/DE]; c/o Philips Intellectual Property & Standards
Gmb, Weisshausstr. 2, 52066 Aachen (DE).

(21) International Application Number:

PCT/IB2005/050635

(74) Agent: **VOLMER, Georg**; Philips Intellectual Property & Standards Gmb, Weisshausstr. 2, 52066 Aachen (DE).

(22) International Filing Date: 22 February 2005 (22.02.2005)

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

English

(26) Publication Language: English

English

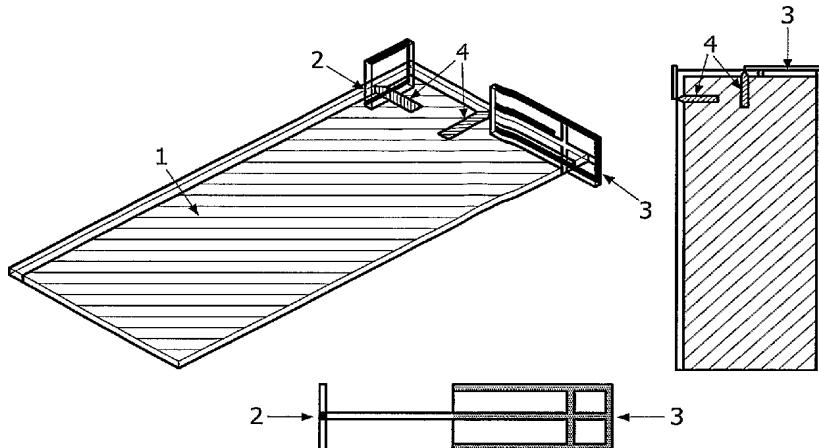
(30) Priority Data:

04100737.8 25 February 2004 (25.02.2004) EP

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

[Continued on next page]

(54) Title: ANTENNA MODULE



(57) **Abstract:** The invention relates to an antenna module for use in hand-held communication devices with two antennae designed to operate both in the GSM and the UMTS frequency bands. In order to realize a particularly small device it is suggested to use two dielectric block antennae (DBA) working in different frequency ranges. This type of antenna comprises a dielectric substrate with a first and a second metallic resonator structure printed on its surface and is basically known from EP 1 289 053 A2. Using two antennae reduces the total volume and consequently the mass in comparison to the case if only one antenna (DBA) is used. At the same time the radiation performance is improved. Additionally the design freedom is increased because the relative positions of the antennae are nearly independent. Furthermore the invention relates to a method to operate a telecommunication device with two antennae, in which the signal of a radio frequency generator is transferred via a power control unit to both antennae at the same time. This approach saves energy and minimizes the amount of radiation absorbed by the user.

WO 2005/086287 A1



FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*